

Location

Brookhaven National Laboratory
Berkner Hall

Date & Time

Wednesday, May 5th
5:30 p.m.

For more information

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The Large Hadron Collider

At Discovery's Horizon

Designed by Sandbox Studio, Chicago

Marc-André Pleier

Brookhaven National Laboratory

Smashing Protons to Smithereens **The Search for the Origin of Mass Using the ATLAS Particle Detector**

BROOKHAVEN
NATIONAL LABORATORY

Brookhaven Lab is on William Floyd Parkway,
one-and-a-half miles north of Exit 68 on the
Long Island Expressway.



BROOKHAVEN NATIONAL LABORATORY
COMMUNITY SCIENCE TALK: *Smashing Protons to Smithereens*
The Search for the Origin of Mass Using the ATLAS Particle Detector

With the Large Hadron Collider (LHC) — the world's newest, biggest and highest energy particle accelerator — successfully smashing 3.5 trillion-electron-volt (TeV) protons to smithereens in Switzerland, Brookhaven Lab physicist Marc-André Pleier will discuss the international ATLAS collaboration's efforts to find the origin of mass and other new physics phenomena using the LHC's ATLAS particle detector.

EVENT: During a free talk geared toward science-interested adults and young people, Dr. Pleier, who is physicist at the U.S. Department of Energy's Brookhaven Lab, will take his audience, figuratively, to CERN, the European physics lab in Switzerland. There, Dr. Pleier will lead his audience through 17 miles of underground tunnels making up the Large Hadron Collider and into the seven-story particle detector called ATLAS. As Dr. Pleier will describe, he and others from Brookhaven and labs around the world use ATLAS to search for evidence of a particle called the Higgs boson, which is thought to be responsible for the mass of all particles — and us.

WHEN: Wednesday, May 5, 2010, starting at 5:30 p.m.

WHERE: Berkner Hall auditorium, Brookhaven National Laboratory. The Laboratory is off the William Floyd Parkway, at the intersection with Longwood Road, one-and-a-half miles north of Exit 68 of the Long Island Expressway.

BACKGROUND: On March 30, 2010, the Large Hadron Collider launched a new era of particle physics by being the first accelerator in the world ever to collide 3.5-TeV proton beams. With an energy of 7 TeV in the center of each head-on proton-on-proton collision, these particle events have three-and-a-half times more energy than has ever before been achieved at the world's most powerful particle accelerators.

Smashing such high-energy protons to smithereens is providing the LHC's ATLAS and another huge particle detector with lots of data to analyze in their search for the Higgs boson and other new physics phenomena. The goal of all this particle-smashing is to answer fundamental questions about origin of mass, the nature of Dark Matter and the early moments of the universe.

Presented in conjunction with the start of LHC's high-energy operations, this talk is part of an international series of public lectures by scientists who perform their research using one of the particle detectors at the Large Hadron Collider.

More information about other lectures in this series may be found at http://www.uslhlc.us/lecture_series/lecturers/index.html.

More information about this talk at Brookhaven Lab may be found at http://www.bnl.gov/bnlweb/pubaf/pr/PR_display.asp?prID=1116

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